

Quick Reference

Cisco IOS Command Chart (IOS v.12+)

BASICS

- Required parameters are in bold
- Optional parameters are in { } curly braces
- Parameters for which there are multiple options are denoted in [] square brackets, but one must be chosen.
- Italics: Replaceable parameters

Configuration modes:

User Exec Mode: Denoted by the ">" prompt, User Exec Mode is the first mode used upon login to the switch.

Privileged Mode (also called "Enable Mode"): Denoted by the "#" prompt Privileged Mode is used to view private device settings. No configuration changes are made in Privileged Mode. But this mode is used to gain access to various configuration modes.

Global Configuration Mode: Denoted by the "(config)#" prompt, the Global Configuration Mode allows you to make changes that affect the whole device, such as DNS settings, logging, and interface enablement/disablement.

Interface Configuration Mode: Allows configuration of network interfaces.

Routing Configuration Mode: Allows configuration of routing protocols.

Keyboard shortcuts:

Esc+B:	Move the cursor back one word
Esc+D:	Delete from the cursor position to the end of the word
Esc+F:	Move the cursor forward to the next word
Ctrl+A:	Move to the first character of the command line
Ctrl+B or left arrow:	Move the cursor back one character
Ctrl+C:	Ends prompts
Ctrl+D:	Delete the character at the cursor location
Ctrl+E:	Jump to the end of the command line
Ctrl+F or right arrow:	Move the cursor forward a character
Ctrl+K:	Delete everything to the end of the command line
Ctrl+L then Ctrl+R:	Repeat the current command on a new line
Ctrl+N or down arrow:	Display the next command in the history buffer
Ctrl+P or up arrow:	Display the previous command in the history buffer
Ctrl+U then Ctrl+X:	Delete from the cursor position to the beginning of the command line
Ctrl+W:	Delete the last word typed
Delete or Backspace	Erase a mistake made when entering a command

DEVICE MANAGEMENT AND GENERAL CONFIGURATION

clear counters

Clear counters, including MAC counters, EtherChannel counters, port and channel traffic counters.

Command mode: Privileged

Syntax: **clear counters** {*interface-type interface* | port-channel *number* | vlan *vlan*}

Parameters:

No parameters Clears all of the counters from the current interface.

interface-type One of ethernet, fastethernet, gigabitethernet, tengigabitethernet, pos, ge-wan, or atm. pos, atm, and ge-wan are available only in IOS 12.1(11b)E or higher.

DEVICE MANAGEMENT AND GENERAL CONFIGURATION *continued*

port-channel	Clear counters from a configured EtherChannel interface. Valid values are dependent on IOS version. For 12.0 to versions less than 12.1(3a)E3, values can range from 1 to 256. 12.1(13)E and later support values between 1 and 282 while other versions support values between 1 and 64.
interface	The module and port number for which to clear counters. Use module/port format.
vlan vlan	Valid values from 1 to 4094 with supervisor engine 2 and from 1 to 1005 with supervisor engine 1. Specify the VLAN whose interface counters should be cleared.

disable

Exits privileged mode and puts you back to the normal command mode

Command modes: Privileged mode

Syntax: **disable** {*access-level*}

Parameters:

access-level	Exit enable mode or exit to a lower access level. Access levels can be created for access to only specific commands.
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enable

Activates privileged mode or increases access level, where device configuration commands are available

Command mode: User exec

Syntax: **enable** {*access-level*}

Parameters:

access-level	Provide configuration access to a specific configuration level. By default, level 15 is entered. Other levels can be created for access to only specific commands.
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session

Provide command line input for a different switch module using that module's set of commands. Use the 'quit' command to exit the new CLI.

Command mode: PRIVILEGED

Syntax: **session slot** *module-number* [*processor processor_id*]

Parameters:

module-number	The number of the module to which to change command context. Valid values depend on the switch. For example in a 6509 chassis, valid values are 2 to 9 while the 6513's is 2 to 13.
processor processor_id	Determine which processor to use.

enable password

Provide a password in order to log into various levels of privileged exec mode.

Command mode: Privileged

Syntax: {no} **enable password** {*level access-level*} [*password*] {*encryption-type*} *encrypted-password*]

Parameters:

no	Remove a password. When used without the level parameter, removes the password from level 15.
level access-level	IOS supports up to 16 privileged exec levels and each can have a separate password. The default applies to level 15. Specify the level for which you want to enable or remove a password. Use the "no" option to remove a password.
password	Provide the password to use to enter the level specified.
encryption-type	Needs to be a "7" as this is the only type of encryption currently supported by IOS. Allows you to copy an encrypted password from another Cisco device.
encrypted-password	The encrypted password from the configuration file of another Cisco device.

copy running-config startup-config

Saves any configuration changes you have made to the device's startup configuration. Changes are then used each time the device boots. Other devices and locations are valid for the copy command, but this is, by far, the most common use of the command.

Syntax: **copy** system:running-config nvram:startup-config

Parameters:

running-config	The configuration file currently running on the device.
startup-config	The device's startup configuration file.

show running-config or more system:running-config

Display the contents of the currently active configuration for the switch or for a specific module.

Command mode: PRIVILEGED

Syntax: **show running-config** {*interface interface*} or **more system:running-config** {*interface interface*}

Parameters:

interface interface	The name of the interface for which configuration details should be displayed. i.e. "fastethernet 1"
---------------------	--

show startup-config or more nvram:startup-config

Displays the contents of the device's startup configuration file.

Command mode: PRIVILEGED

Syntax: **show startup-config** **more nvram:startup-config**

Parameters:

No parameters

DEVICE MANAGEMENT AND GENERAL CONFIGURATION *continued*

hostname

Set the hostname for the device.

Command mode: Global Configuration

Syntax: **hostname** *name*

name The name you wish to assign to the router or switch. The default name is "router".

configure

Enter global configuration mode where you can make global device configuration changes and enter other sub-configuration modes.

Command mode: Privileged Exec

Syntax: **configure** [terminal | memory]

Parameters:

no parameters Starts an interactive session to determine configuration information location.

terminal Provide configuration information from the terminal console.

memory Executes commands stored in NVRAM, or from the CONFIG_FILE variable (for a class A file system).

enable secret

Provide a password in order to log into various levels of privileged exec mode. Provides additional security over the use of the "enable password" command. Passwords are hashed using an MD5 checksum.

Command mode: Global

Syntax: {no} **enable secret** {level *access-level*} [*password* | {*encryption-type*} *encrypted-password*]

Parameters:

no Remove a password. When used without the level parameter, removes the password from level 15.

level access-level IOS supports up to 16 privileged exec levels and each can have a separate password. The default applies to level 15. Specify the level for which you want to enable or remove a password. Use the "no" option to remove a password.

password Provide the password to use to enter the level specified.

encryption-type Needs to be a "7" as this is the only type of encryption currently supported by IOS. Allows you to copy an encrypted password from another Cisco device.

encrypted-password The encrypted password from the configuration file of another Cisco device.

setup

Provides step-by-step assistance in the initial configuration of your device.

Command mode: Privileged exec

Syntax: **setup** {no parameters}

Parameters:

none

TROUBLESHOOTING COMMANDS

Reload

Reload IOS on the device and reboots the system.

Command mode: PRIVILEGED

Syntax: **reload** {*reason* | in {*hour*:*minute*} {*reason*} | at *hour*:*minute* {*month day* | *day month*} {*reason*} | cancel}

Parameters:

reason Provide up to 255 characters with a reason for the reload.

in hour:minute Schedule the reload to take place in the number of hours and minutes specified.

at hour:minute Specify the exact time of day for the reload.

month If you specify the month, the reload will take place at the time specified above in the month specified here.

day If you specify the day, the reload will take place at the time specified above on the day specified here.

cancel Cancel a previously scheduled reload operation.

show version

Show the version of hardware and IOS running on the switch as well as configuration file information and available boot images.

Command mode: PRIVILEGED

Syntax: **show version** {no parameters}

show processes

Show switch CPU, process, and memory information.

Command mode: PRIVILEGED

Syntax: **show processes** {cpu}

Parameters:

cpu Show switch CPU information and utilization. Omission of this parameter results in the display of switch process information.

trace

Display the path traversed by a packet in its way to a destination host.

Command mode: PRIVILEGED, Privileged

Syntax: **trace** {*protocol*} {*destination-host*}

TROUBLESHOOTING COMMANDS *continued*

Parameters:

no parameters	Starts an interactive session asking for information regarding the way you want to handle the trace, including time to live, etc.
protocol	The protocol to use to test communication. Valid values are appletalk, clns, ip, and vines.
destination-host	The name or address of the host to which communication is to be tested. Name should be in the format appropriate for the protocol specified.

ping

Send echo request packets to remote nodes to confirm their connectivity status. Works with AppleTalk, CLNS, IP, Novell, Apollo, VINES, DECnet, or XNS networks. Also works in privileged mode with many more options.

Command mode: PRIVILEGED

Syntax: **ping** {*protocol*} [*host-name* | *ip-address*]

Parameters:

protocol	The protocol used by the target device. Options: apollo, appletalk, clns, decnet, ip, ipx, vines, and xns.
host-name	The host name of the remote system.
ip-address	The IP address of the remote system to which packets should be sent.

test memory

Tests system memory. Requires a reload after use.

Command mode: PRIVILEGED

Syntax: **test memory** {no parameters}

GLOBAL TCP/IP COMMANDS

arp

Add or remove an IP address-to-MAC address entries to the ARP table

Command mode: Global

Syntax: {no} **arp** *ip_address hardware_address encapsulation* {*alias*}

Parameters:

no	Remove the entry from the ARP table.
ip_address	The IP address to add to the ARP table.
hardware_address	The MAC address to add to the ARP table. Use the format: xxxx.xxxx.xxxx.
encapsulation	The encapsulation type in use. For Ethernet, use 'arpa'. For FDDI and token ring, use 'snap'.

clear arp-cache

Delete IP route cache and dynamic entries from the device's ARP table.

Command mode: PRIVILEGED

Syntax: **clear arp-cache** {no parameters}

show arp

Display the entries in the switch's ARP table.

Command mode: Privileged

Syntax: **show arp** {no parameters}

clear ip route

Delete all or specific IP routing table entries

Command mode: PRIVILEGED

Syntax: **clear ip route** [*network* {*mask*} | *]

Parameters:

network	Remove the specified network or subnet address.
mask	Include a related subnet address, if desired.
*	Remove all IP routing table entries.

show ip route

Display the contents of the IP routing table

Command mode: PRIVILEGED

Syntax: **show ip route** {{*ip-address* {*subnet-mask*} {*longer-prefixes*}} | {*protocol* {*process-id*}} | {*list access-list-number* | *access-list-name*}}

Parameters:

ip-address	Display routing table information for the address specified.
subnet-mask	Optionally, include a subnet mask with the above IP address.
longer-prefixes	Create a prefix with the specified ip-address and subnet mask and display related routing information.
protocol	One of "connected", "static", or "summary", or a routing protocol, including bgp, egp, eigrp, hello, igrp, isis, ospf, or rip. Display information related to the protocol.
process-id	The process-id number for the specified protocol.
list access-list-number	Filter the output based on the access list number provided here.
list access-list-name	Filter the output based on the access list name provided here.

ip subnet-zero

Enables or disabled the use of the zero subnet for IP addresses and routing tables.

Command mode: Global

Syntax: {no} **subnet-zero**

Parameters:

no	Disables the use of the zero subnet on the device.
----	--

GLOBAL TCP/IP COMMANDS *continued*

ip domain-name

Provides the device with a global default domain name used to complete DNS resolution.

Command mode: Global

Syntax: {no} **ip domain-name** {*domain*}

Parameters:

- | | |
|--------|--|
| no | Disables DNS on the device. |
| domain | The domain name to use on this device. |

ip domain-lookup

Enables or disables DNS lookups on the device.

Command mode: Global

Syntax: {no} **ip domain-name** {*no parameters*}

Parameters:

- | | |
|----|--|
| no | Disables DNS on the device. By default, DNS lookups are enabled. |
|----|--|

INTERFACE COMMANDS

show cdp neighbors

Display information about CDP-enabled neighbor devices.

Command mode: Privileged Exec

Syntax: **show cdp neighbors** {*type number*} {*detail*}

Parameters:

- | | |
|--------|---|
| type | Show CDP information for a specific type of interface connected to the neighbor. (i.e. Ethernet) |
| number | The interface number to which devices are connected for which you want to display CDP information. |
| detail | Display detailed CDP information. Includes the neighbor's network address, protocols, version and more. |

show cdp interface

Display CDP-enabled interfaces.

Command mode: Privileged Exec

Syntax: **show cdp interface** {*type number*}

Parameters:

- | | |
|--------|--|
| type | Show CDP information for a specific type of interface. (i.e. Ethernet) |
| number | The interface number for which you want to display CDP information. |

cdp run

Enable Cisco Discovery Protocol (CDP) globally on the device.

Command mode: Global

Syntax: (no) **cdp run**

Parameters:

- | | |
|----|-------------------------------------|
| no | Disable CDP globally on the device. |
|----|-------------------------------------|

cdp enable

Enable or disable the Cisco Discovery Protocol (CDP) on an interface.

Command mode: Interface

Syntax: (no) **cdp enable**

Parameters:

- | | |
|----|--------------------------------------|
| no | Disable CDP on the active interface. |
|----|--------------------------------------|

interface

Select an interface to configure. Also enters the configuration mode for that particular interface.

Command mode: Global

Syntax: **interface** *interface-type interface-number*

Parameters:

- | | |
|------------------|---|
| interface-type | One of: ethernet, fastethernet, gigabitethernet, tengigabitethernet, ge-wan, pos, atm, vlan, port-channel, null |
| interface-number | The interface (module/port) that you wish to configure. |

show interfaces status

Display a list of interfaces with status information, including connected state, speed, duplex and VLAN.

Command mode: PRIVILEGED

Syntax: **show interfaces** {*interface interface-number*} status {*err-disabled | inactive | module module-number*}

Parameters:

- | | |
|----------------------|--|
| interface | The type of interface for which to display status information. Valid types are: ethernet, fastethernet, gigabitethernet, tengigabitethernet, pos, atm, and ge-wan. |
| interface-number | The module/port for which to display information. |
| err-disabled | Display only ports that are in an error-disabled state. |
| inactive | Display inactive ports and the reason they are inactive. |
| module module-number | The module number for which to display interface status. |

shutdown

Enable or disable an interface.

Command mode: Interface configuration

Syntax: {no} **shutdown**

Parameters:

- | | |
|----|-----------------------|
| no | Enable the interface. |
|----|-----------------------|

ip address

Configure or remove the IP address (or addresses) for the current interface.

Command mode: Interface

Syntax: {no} ip address *ip-address subnet-mask* [*secondary*]

Parameters:

- | | |
|----|---|
| no | Remove the primary or secondary IP address for the current interface. |
|----|---|

INTERFACE COMMANDS *continued*

ip-address	The IP address to assign to the interface.
subnet-mask	The subnet mask for the network to which the interface is connected.
secondary	When omitted, the IP address provided is the interface's primary IP address. Use the secondary keyword to add a second IP address to the current interface.

ip rip send version

Specify the version of RIP (Routing Information Protocol) to use on the current interface.

Command mode: Interface

Syntax: **ip rip send version** {1} {2}

Parameters:

no	Eliminate the interface specific RIP rule and use the global RIP configuration value instead.
1	Send RIP v1 packets out from this interface.
2	Send RIP v2 packets out from this interface. Specify both options to send both v1 and v2 packets.

ip rip receive version

Specify the version of RIP (Routing Information Protocol) to receive on the current interface.

Command mode: Interface

Syntax: {no} **ip rip receive version** {1} {2}

Parameters:

no	Eliminate the interface specific RIP rule and use the global RIP configuration value instead.
1	Receive RIP v1 packets on this interface.
2	Receive RIP v2 packets on this interface. Specify both options to receive both v1 and v2 packets.

description

Add or remove a description for an interface. A description is often more useful than trying to remember port numbers.

Command mode: Interface configuration

Syntax: {no} **description** *interface-description*

Parameters:

no	Remove the description from the current interface.
interface-description	The description to assign to the current interface. For example "Gigabit Ethernet connected to edge switch in building 3"

bandwidth

Explicitly set or restore to defaults the speed of an interface for use by higher level protocols. Useful in situations where you have a fractional connection which higher level routing protocols need to be aware of.

Command mode: Interface configuration

Syntax: {no} **bandwidth** *kbps*

Parameters:

no	Restore the default speed of the interface defined during startup.
kbps	The speed of the interface defined in kilobits per second.

mtu

Define or set back to the global default the maximum transmission unit (maximum packet size) supported by the current interface.

Command mode: Interface configuration

Syntax: {no} **mtu** *bytes*

Parameters:

no	Restore the default MTU of the interface defined based on the type of the interface.
bytes	The size of packets originating from this interface.

encapsulation

For a serial interface, define the encapsulation method used.

Command mode: Interface configuration

Syntax: **encapsulation** [hdlc | ppp]

Parameters:

hdlc	Use HDLC (High-Level Data Link Control) for the current serial interface.
ppp	Use PPP (Point-to-point Protocol) for the current serial interface.

channel group

Assign or remove a Fast Ethernet interface to or from an EthernetChannel group. Add channels to an interface to increase the connection speed of the link.

Command mode: Interface configuration

Syntax: {no} **channel-group** {*channel-id*}

Parameters:

no	Remove the Fast Ethernet port from the specified EtherChannel group.
channel-id	The EtherChannel port group to which this interface is to be assigned.

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ROUTING PROTOCOL COMMANDS

router

Enter the configuration mode for a specific routing protocol or disable the use of a particular protocol.

Command mode: Global

Syntax: {no} **router** {{bgp | eigrp | igrp [*autonomous-system*]} | ospf *process-id* | rip}

Parameters:

no	Shutdown or disable the selected routing protocol and process.
bgp	Configure the BGP (Border Gateway Protocol) routing protocol parameters.
eigrp	Configure the EIGRP (Enhanced Internet Gateway Routing Protocol) routing protocol parameters.
igrp	Configure the IGRP (Internet Gateway Routing Protocol) routing protocol parameters.
autonomous-system	The value that identifies a route to other similarly configured routers. Tags routing information with this identifier. Used for BGP, EIGRP, and IGRP protocols. This is a number.
ospf	Configure the OSPF (Open Shortest Path First) routing protocol parameters.
process-id	Each OSPF routing process is locally assigned this unique identifier, which is a number.
rip	Configure the RIP (Routing Information Protocol) routing protocol parameters.

ip route

Add or remove a global static route from the IP routing table.

Command mode: Global

Syntax: {no} **ip route** *route-prefix prefix-mask* [*ip-address* | *interface-type interface-number* {*ip-address*}] {*distance*} {*name*} {*permanent*} {*tag map-tag*}

Parameters:

no	Remove the selected entry from the routing table. When using this option, only include the route-prefix and prefix-mask directives.
route-prefix	The IP route prefix for the destination host or network.
prefix-mask	The netmask for the destination host or network.
ip-address	The address of the next hop to reach the destination host or network.
interface-type	The type of interface used for the static route. For example, ethernet, fastethernet, etc.
interface-number	The interface number associated with the selected interface. For example, 3/2, 4/3.
distance	The administrative distance to assign to the route.

name	The name to apply to the new route.
permanent	Make the new route permanent. The route will stay valid even if the interface shuts down.
tag map-tag	Provides a value that helps control route distribution with route maps.

neighbor

Indicate to the device and routing protocols the devices that are or are not interconnected.

Command mode: Router

Syntax: {no} **neighbor** *ip-address* {*priority priority-value*} {*poll-interval seconds*} {*cost cost-value*}

Parameters:

no	Remove an entry from the neighbor table.
ip-address	The IP address of the router with which to share routing table information.
priority priority-value	(OSPF only) The priority value of the specified nonbroadcast neighbor device.
poll-interval seconds	(OSPF only) The number of seconds to wait between update polls.
cost cost-value	(OSPF only) The cost to assign to this neighbor device.

network

The network address of all directly connected networks using RIP, IGRP or EIGRP. Use this command to add each separate RIP-, IGRP- or EIGRP-enabled network and use the 'no' command to remove a network from the list. Use this command only on like routing protocols. For example, don't add an IGRP network to the RIP router.

Command mode: Router

Syntax: {no} **network** *network-address*

Parameters:

no	Remove the network entry from the list of RIP-, IGRP- or EIGRP-enabled networks.
network-address	The network address to add to the table. i.e. 172.16.1.0.

version

Specify the global RIP version for the router to use.

Command mode: Router

Syntax: {no} **version** [1 | 2]

Parameters:

no	Restore the default value. The default value enables the router to receive both RIP 1 and RIP 2 packets and to send only RIP 1 packets.
1	Use RIP v1.
2	Use RIP v2.

For complete commands for Cisco IOS see <http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/index.htm>